32. (New) The program storage device of claim 30, wherein the step of testing whether and end of the data segment has been detected comprises the step of testing for a premature end tag and terminating the reception of the data segment when a premature end tag is received.

REMARKS

I. Introduction

In response to the Office Action dated August 30, 1999, claims 9 and 22 have been canceled, claims 1, 10, 19, and 29 have been amended, and new claims 31-32 have been added. Claims 1-8, 10-21, and 23-32 remain in the application. Re-examination and re-consideration of the application, as amended, are requested.

II. Claim Amendments

Applicants' attorney has made amendments to the claims as indicated above. These amendments were made solely for the purpose of clarifying the language of the claims, and were not required to distinguish the claims over the prior art of record.

III. The Cited References and the Subject Invention

A. The Van Loon Reference

U.S. Patent No. 5,790,802, issued to Van Loon et al on August 4, 1998 discloses a method for exchanging a message between systems in which the message comprises an information element of a first type and information element of a second type.

The Van Loon reference teaches that additive streaming protocols are known in the art. (See col. 1, lines 12-27). The Van Loon reference then teaches that such protocols are problematic, because they allow freedom in developing subsequent protocol versions (presumably, because they must be additive), and because messages based on higher protocol versions are essentially wasted information (e.g. "have no significance whatsoever") for systems operating with lower protocol versions. (See col. 1, lines 29-34).

The Van Loon reference therefore proceeds to disclose a system which is not limited to additive streaming protocols. (See col. 5, line 43, through col. 7, line 6). As the Applicants'

understand (this section of the Van Loon patent is by no means a model of clarity), the Van Loon reference discloses the following.

A message is transmitted having a header (formed, for example, by bytes A and B), an information element of a first type (formed, for example, by bytes C and D), an information element of the second type (formed, for example, by bytes E and F), and a subsequent information element of the second type (formed, for example, by bytes G and H). See, e.g. col. 5, lines 55-61.

When the message is received, a processor 10 analyzes either the header of the message (bytes A and B) or the remaining portion of the message (bytes C, D, E, and F), to generate a control signal. A memory means 13 stores a table having two columns; the first with information elements of the first type (corresponding to bytes A and B) and the second with information elements of the second type (corresponding to bytes C and D). The processor 10 and the memory 13 interact via the control link 18 and a comparison between data stored in the table and the incoming data is performed to determine the protocol. Presumably, because the new protocols can be described in the table, greater flexibility in designing new protocols is provided.

B. The Cullen Reference

U.S. Patent No. 5,893,908, issued to Cullen et al. on April 13, 1999 discloses a document management system. The system performs document analysis to provide automatic archiving of documents and retrieval without the need to navigate through a directory structure or specify a filename. Document comparison is facilitated by automatic retrieval of a previous version of a document.

C. The Subject Invention

The Applicants' invention describes a forward and backward compatible streaming protocol that requires subsequent versions of the protocol to be purely additive relative to earlier versions.

When a data segment is transmitted as a data stream, a first stream of data that is in accordance with a first version of the protocol is transmitted, with additional streams of data that are in accordance with subsequent versions of the protocol appended in sequence to the first stream of data.

When a read module implements an earlier version of the protocol than a write module, the data segment is truncated to include only the data supported by the version implemented by the read module. On the other hand, when the read module implements a later version of the protocol than

the write module, receipt of the data segment is terminated after the data supported by the version implemented by the write module is received.

D. Differences Between the Subject Invention and the Cited References

As described above, Van Loon discloses that additive protocols are known in the art, but problematic. The Van Loon reference then goes on to disclose a rather complicated system which does not require additive protocols. Essentially, the system compares data stored in a table to the incoming data streams to determine the protocol of the incoming data stream.

The Applicants' invention, however, is operable only with additive streaming protocols (see, e.g. Abstract), and distinguishes among the protocols by testing whether the end of the data segment has been detected prior to receiving each additional stream of data, and terminating the reception of the data segment prior to receiving the additional stream of data. In one embodiment, this is accomplished via the use of begin and end tags. This is substantially different than the system disclosed in the Van Loon reference.

The Cullen reference teaches different document versions, but does not teach different protocol versions. As described in earlier amendments, protocols are not analogous to content.

IV. Office Action Rejections

In paragraph 1, the Office Action rejected claims 1-7 and 12 under 35 U.S.C. § 102 as unpatentable over the Van Loon reference. The Applicants respectfully traverse this rejection, and assert that amended claims 1-7 and 12 are patentable over the cited reference.

Regarding claim 1: Claim 1 has been amended to include the limitations of claim 9. The Office Action acknowledges that Van Loon does not teach the use of begin and end tags. Recognizing this, the Office Action cites the Cullen reference as disclosing the use of beginning and end tags. Cullen discloses the use of tags to identify HTML documents, which are said to include beginning and end tags. Apparently, the Office Action argues that it would be obvious for one of ordinary skill in the art to modify the teaching of Van Loon in accordance with the Cullen reference to arrive at the Applicants' invention. The rationale for this argument, reproduced below, is not clear to the Applicants:

> "In order to implement the system, and ordinary skilled in the art would look to the client/server environment which has the module identified the version or message such as Cullen et al, in his application on Document management System, taught a hypertext interface system for navigating through a sequence or tree of document versions (col. 2, line

30-35] in which the HTML page using alias tag, additional tag, begin tag and end tag as inherant features to identified the transaction data through network such as version protocols [Cullen col 4 line 43]. These advantages would fit to the Van Loom system to speed up the process identify and update version of protocol on client/server."

Cullen uses document tags to indicate document versions. Further, since it operates with documents in HTML, it also deals with documents arriving with beginning and end tags. However, Cullen does not disclose any means for handling different *protocol* versions.

The difference between handling different protocol versions and data content versions has arisen before with regard to the Applicants' invention (with regard to the Cookson reference). To illustrate the difference between the handling of different document versions and different protocol versions, consider an example of two individuals who speak the same language exchanging documents. As long as the individuals speak the same language (analogous to the protocol), the transfer of information, even different versions can be accomplished by simply indicating the document versions (analogous to the different document versions in Cullen) on the document themselves. However, a fundamentally different problem is presented if the two individuals do not speak the same language (e.g. different protocols). Without some sort of (presumably) *a priori* information, implied or otherwise, on how to interpret the documents in the proper language, no transfer of information (including the version numbers or information by which the proper protocol can be determined) can proceed. Handling different protocols therefore presents an entirely different problem than dealing with different document versions.

In any case, even if protocol versions could be said to be analogous to different data content versions, neither Cullen nor Van Loon teaches handling of different versions by using the beginning and end tags of the data segment itself. Cullen and Van Loon both teach adding additional information (the header AB in Van Loon and the document tag in Cullen) to identify different versions. The Applicants therefore traverse the rejection of amended claim 1.

Claims 2-7 incorporate all the limitations of claim 1, and are therefore patentable on this basis as well. Claims 2-7 include limitations that render them even more remote from the Van Loon reference, as described below.

Regarding claim 2: Relying on the disclosure at col. 6, lines 7-60, the Office Action asserts that Van Loom implicitly teaches "the step of testing or analysis prior to receiving each additional stream of data whether the end of the data segment has been detected, and if so,

terminating the reception of the data segment prior to receiving the additional stream of data or subsequent version."

This is simply untrue. The Van Loon reference teaches the comparison of the incoming data stream with data stored in a table. Depending on this comparison, the information corresponding to the proper protocol is provided. This is entirely different than the method described in the Applicants' claims.

Regarding claim 3: The Office Action suggests that Van Loon discloses that the data segment is an object at col. 6 in lines 14 and 32. Of course, this is not the case. The cited passages refer to messages, not objects. It is well known that messages and objects are not conceptually or grammatically interchangeable. The Applicants therefore traverse the rejection of claim 3.

Regarding claim 4: The Office Action apparently concedes that Van Loon does not disclose a system wherein the data segment includes all of the data necessary to reconstruct the object, but argues that this feature is inherent in a computer system.

To establish inherency, extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. The Applicants respectfully assert that data segments do not necessarily include all of the data necessary to reconstruct data objects. Hence, a rejection under the inherency doctrine is improper, and the Applicants respectfully traverse the rejection of claim 4.

Regarding claim 5: The Office Action indicates that Van Loon discloses the step of initializing object data that is not received from the data stream to a default value at col. 6, line 16. The Applicants respectfully suggest that this is not the case. Col. 6, line 16 discloses: "...bytes A and B, or by analysis of the content of the remaining..." There is no mention whatever of the elements described in claim 5.

Regarding claim 6: The Office Action indicates that Van Loon discloses the step of transmitting an object type for the data segment, and receiving the object type, including allocating and initializing an object when receiving the data segment based upon the object type at col. 7, line 13. Again, this is not the case. The Van Loon reference discloses nothing whatsoever of data objects, object types, or how to handle processing according to object type. Objects are not versions, and object types are not version types.

In paragraph 2, the Office Action rejected claims 8-11 under 35 U.S.C. § 103 as unpatentable over Van Loon in view of the Cullen reference. The Applicants respectfully traverse these rejections

because these claims incorporate all of the limitations of their related independent claims, and for the reasons described below.

Regarding claims 8: The Applicants believe that the Office Action mistakenly included claim 8 in its § 103 rejection.

Regarding claim 10: Cullen, which teaches the use of HTML documents (which are replete with tags) teaches away from the Applicant's method (in which there are no tags between the beginning and end tags).

Regarding claim 11: The Office Action rejected claim 11 asserting that Van Loon discloses the Applicants' steps of determining whether the data segment is stored in a current context for the data stream; if so, transmitting an alias tag in lieu of the data segment; and if not, storing the data segment in the current context. These features are alleged to be disclosed at col. 2, line 39 of the Van Loon reference. However, this is not the case. This portion of the Van Loon reference uses the word "context," but not in referring to the data stream. Essentially, the Office Action has taken the word "context" as it is used in Van Loon, out of context.

In paragraph 2, the Office Action also rejects claims 13-30 by a rationale similar to that which was expressed for claims 1-12. Applicants traverse these rejections for the reasons cited above.

V. New Claims

New claims 31 and 32 are presented for the first time in this Amendment. For the reasons described above, new claims 31 and 32 are patentable over the prior art of record, and the Applicants respectfully request the allowance of these claims as well.

VI. Conclusion

In conclusion, independent claims 1, 13, 19, 24, 28, 29, and 30 of the present application recite novel features which are not found in or suggested by the cited references. In addition, claims 2-8, 10-12, 14-18, 20-21, 23, 25-27, and 31-32 dependent thereon include additional novel features and are even more remote from the teachings of the cited references. As a result, the Applicants respectfully request the allowance of the present application.

In view of the above, it is submitted that this application is now in good order for allowance and such allowance is respectively solicited. Should the Examiner believe minor matters still remain that can be resolved in a telephone interview, the Examiner is urged to call Applicants' undersigned attorney.

Respectfully submitted,

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By their attorneys,

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